EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes

and/or additions be unacceptable to applicant, an amendment may be filed as provided

by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be

submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview

with Rosa Kim on September 3, 2009.

IN THE SPECIFICATION:

Please amend paragraph 49 as follows:

[0049]   Simply for the purposes of illustration, the preferred embodiments

described herein have included a substantial[[ly]] number of image storage blocks, such

as the capture memory 116, the internal hard disk 230, the external storage media 124,

the network server 126 and the workstation 128, but not all such blocks are necessary

to carry out the invention, and in fact, the invention can be carried out with as few as

one memory storage block. Similarly, while the preferred embodiments described herein

have included a substantial number of algorithm blocks in the event recognition

processor 120, as few as one of such blocks could be used in the intelligent ultrasound

examination storage system, saving the sonographer the necessity of focusing

simultaneously on the real-time ultrasound examination and the preservation of key

data for later review.

IN THE CLAIMS:

Claim 1.   In a diagnostic medical ultrasound system, the improvement comprising an event recognition processor, wherein said event recognition processor is ~~operative~~ configured:

            a.   to recognize one or more non-cyclical distinguished events constituting a subset of an ultrasound examination, the ultrasound examination comprising a rolling stream of a series of ultrasound image data sets during a real-time examination, the recognition being based on analysis by the event recognition processor of the ultrasound image data sets of the ultrasound examination, wherein the one or more non-cyclical distinguished events are temporal events; and

            b.   to select a portion being less than all of the ultrasound examination to be stored or marked based on the recognition of the one or more distinguished events, non-selected portions of the ultrasound examination including ultrasound image data sets after the one or more distinguished events, by performing at least one of the following:

                     i.   automatically marking the one or more events;

                     ii.   automatically causing the one or more events to be marked;

                     iii.   automatically storing the one or more events;

                     iv.   automatically causing the one or more distinguished events to be stored;

                     v.   automatically terminating storage of a portion of the ultrasound examination;

            vi.   automatically causing termination of storage of a portion of the ultrasound examination; or

            vii.   combinations thereof;

further comprising an image characterization capability, wherein said image characterization capability is ~~operative~~ configured:

            a.   to select a cropping factor based upon characterization of an image; and

            b.   to cause less than an entire field of view of an image to be stored.

Claim 10.   The invention of Claim 1, further comprising an event characterization capability, wherein said event characterization capability is ~~operative~~ configured:

            a.   to select one or more retention states based upon event characterization of a feature in the selected portion of the ultrasound examination; and

            b.   to cause fewer than all image data sets of the selected portion of the ultrasound examination to be stored for some characterized features.

Claim 21.   In a diagnostic medical ultrasound system, the improvement comprising an intelligent examination storage system, said intelligent examination storage system comprising an event recognition processor with an event characterization capability ~~operative~~ configured to automatically recognize from image analysis and to mark or store one or more non-repeating subsets of an ultrasound examination, the ultrasound examination comprising a rolling stream of a series of ultrasound image data sets of a feature during a real-time examination, said event

characterization capability selecting, based on event characterization of the feature,
said one or more non-repeating subsets to be ~~being~~ bracketed by one or more pairs of
distinguished events determined as a function of the image analysis of the feature
comprising motion in the ultrasound examination, portions of the ultrasound examination
after at least one pair of the one or more pairs of distinguished events not being marked
or stored.

      Claim 22.   (canceled)

      Claim 23.   (canceled)

      Claim 25.   (canceled)

      Claim 26.   The improvement of Claim [[22]] 21, wherein the event recognition
processor automatically marks a first event of each pair with a start marker and a
second event of each pair with an end marker.

      Claim 29.   A method for storing data by a diagnostic medical ultrasound
system, the method comprising:

            a.   inputting ultrasound examination data event recognition
processor comprising a sequence of image data sets to an event recognition processor;

            b.   processing the examination data with the event recognition
processor by:

                i.   reviewing the sequence of image data sets;

                ii.   determining, as a result of the reviewing ~~of the~~
~~sequence of image data sets by the event recognition processor~~, whether a
non-cyclical distinguished event has occurred;

　　　　　　　iii.　　if a distinguished event has occurred, selecting a

subset of the image data sets for marking and[[/or]] storage, or for cessation

[[or]] of marking and[[/or]] storage;

　　　　　c.　　marking or storing the selected subset of the image data

sets, or stopping the marking and/or storage of the selected subset of the image data

sets, without the need for user intervention;

　　　　wherein motion between sequential image data sets is reviewed, and the

determination of whether a distinguished event has occurred is based upon the absence

of substantial motion above a pre-determined motion threshold.

　　　Claim 32.　　A method for storing data by a diagnostic medical ultrasound

system, the method comprising:

　　　　　a.　　inputting ultrasound examination data comprising a

sequence of image data sets to an event recognition processor;

　　　　　b.　　processing the examination data with the event recognition

processor by:

　　　　　　　i.　　reviewing the sequence of image data sets;

　　　　　　　ii.　　determining, as a result of the reviewing of the

sequence of image data sets by the event recognition processor, whether a

non-cyclical distinguished event has occurred;

iii.   if a distinguished event has occurred, selecting a
subset of the image data sets for marking and[[/or]] storage, or for cessation
[[or]] of marking and[[/or]] storage;

c.   marking or storing the selected subset of the image data
sets, or stopping the marking and[[/or]] storage of the selected subset of the image data
sets, without the need for user intervention:

further comprising in step b, applying a cropping factor before storing, and
storing frames cropped by said cropping factor.

Claim 45.   The method of Claim 29, wherein step b further comprises an event
characterization capability, wherein said event characterization capability is <u>configured</u>
~~operative~~:

a. to select one or more retention states based upon characterization of a
feature in the selected portion of the ultrasound examination; and

b. to cause fewer than all image data sets of the selected portion of the
ultrasound examination to be stored for some characterized features.

Claim 46.   The system of Claim 1 wherein the event recognition processor is
<u>configured</u> ~~operative~~ to recognize the one or more non-cyclical distinguished events
automatically without user input of criteria for recognizing the one or more non-cyclical
distinguished events.

The following is an examiner's statement of reasons for allowance:

The prior art of record of Hsieh, et al. identify an image and then direct an imaging system to re-acquire additional images (col. 2, lines 40-44). Subsequent images are acquired and stored (col. 9, lines 7-13; col. 9, lines 25-49; and col. 11, lines 11-34). Hsieh, et al. do not have non-selected portions of the examination that include image data sets after the one or more distinguished events and an image characterization capability that is operative to select a cropping factor based upon characterization of an image and to cause less than an entire field of view of an image to be stored. Hsieh, et al. and McDonald do not disclose one or more non-repeating subsets being bracketed by one or more pairs of distinguished events determined as a function of the image analysis of motion in the ultrasound examination.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOHN F. RAMIREZ whose telephone number is (571)272-8685. The examiner can normally be reached on (Mon-Fri) 7:00 - 3:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian L. Casler can be reached on (571) 272-4956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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